SANTA CRUZ BIOTECHNOLOGY, INC.

KCNQ2 (C-18): sc-7792

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Epilepsy affects about 0.5% of the world's population and has a large genetic component. Epilepsy results from an electrical hyperexcitability in the central nervous system. Potassium channels are important regulators of electrical signaling, determining the firing properties and responsiveness of a variety of neurons. Benign familial neonatal convulsions (BFNC), an autosomal dominant epilepsy of infancy, has been shown to be caused by mutations in the KCNQ2 or the KCNQ3 potassium channel genes. KCNQ2 and KCNQ3 are voltage-gated potassium channel proteins with six putative transmembrane domains. Both proteins display a broad distribution within the brain, with expression patterns that largely overlap.

REFERENCES

1. Singh, N.A., et al. 1998. A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns. Nat. Genet. 18: 25-29.
2. Schroeder, B.C., et al. 1998. Moderate loss of function of cyclic-AMP-modulated KCNQ2/KCNQ3 K^+ channels causes epilepsy. Nature 396: 687-690.
3. Biervert, C., et al. 1998. A potassium channel mutation in neonatal human epilepsy. Science 279: 403-406.
4. Yang, W.P., et al. 1998. Functional expression of two KvLQT1-related potassium channels responsible for an inherited idiopathic epilepsy. J. Biol. Chem. 273: 19419-19423.
5. Charlier, C., et al. 1998. A pore mutation in a novel KQT-like potassium channel gene in an idiopathic epilepsy family. Nat. Genet. 18: 53-55.
6. Wang, H.S., et al. 1998. KCNQ2 and KCNQ3 potassium channel subunits: molecular correlates of the M-channel. Science 282: 1890-1893.
7. Tinel, N., et al. 1998. The KCNQ2 potassium channel: splice variants, functional and developmental expression. Brain localization and comparison with KCNQ3. FEBS Lett. 438: 171-176.

CHROMOSOMAL LOCATION

Genetic locus: KCNQ2 (human) mapping to 20q13.33; Kcnq2 (mouse) mapping to 2 H4.

SOURCE

KCNQ2 (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of KCNQ2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-7792 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

KCNQ2 (C-18) is recommended for detection of KCNQ2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

KCNQ2 (C-18) is also recommended for detection of KCNQ2 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for KCNQ2 siRNA (h): sc-35747, KCNQ2 siRNA (m): sc-35748, KCNQ2 shRNA Plasmid (h): sc-35747-SH, KCNQ2 shRNA Plasmid (m): sc-35748-SH, KCNQ2 shRNA (h) Lentiviral Particles: sc-35747-V and KCNQ2 shRNA (m) Lentiviral Particles: sc-35748-V.

Molecular Weight of KCNQ2: 120 kDa.

Positive Controls: rat brain extract: sc-2392, rat cerebellum extract: sc-2398 or EOC 20 whole cell lysate: sc-364187.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Bassi, M.T., et al. 2005. Functional analysis of novel KCNQ2 and KCNQ3 gene variants found in a large pedigree with benign familial neonatal convulsions. Neurogenetics 6: 185-193.
2. Roza, C., et al. 2011. Accumulation of Kv7.2 channels in putative ectopic transduction zones of mice nerve-end neuromas. Mol. Pain 7: 58.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.